GUIDELINES FOR THE CONTROL OF GASTROENTERITIS OUTBREAKS IN LONG-TERM CARE AND OTHER INSTITUTIONAL SETTINGS

Introduction

New Jersey Administrative Code, Title 8, Chapter 57 mandates that long-term care facilities immediately report any known or suspect communicable disease outbreak, by phone to the local health department (LHD) with jurisdiction over the facility. State facilities are to report directly to the New Jersey Department of Health and Senior Services (DHSS) which is responsible for leading state facility investigations.[1] DHSS shall inform the LHD and regional agency of a state facility outbreak to assure they are aware of communicable disease issues that may affect them, and request assistance as appropriate.

Reporting communicable disease outbreaks in healthcare institutions serves many purposes. **The immediate goal is to control further spread of the disease.** Beyond that, information gained from outbreak investigations can help healthcare facilities and public health agencies identify and eliminate infection sources such as contaminated products, learn about emerging problems, identify carriers to mitigate their role in disease transmission, and implement new strategies for prevention within facilities.

Reporting

Reporting refers not only to the initial outbreak notification, but also to routine updates of outbreak status. The facility and the LHD shall be in daily contact regarding case numbers, control measures taken, and other pertinent information.

Upon receiving the initial report, the LHD shall inform the regional agency and DHSS of the situation. Notification of the outbreak to the regional epidemiologist ensures regional agency awareness of communicable disease issues in their area, and gives the LHD access to consultation and assistance in managing the outbreak.

- The facility shall:
  - Notify The Assessment and Survey Unit of the Division of Health Facilities Evaluation & Licensing, via voicemail at 1-800-792-9770. *(This applies to Assisted Living Facilities, Assisted Living Programs, Comprehensive Personal Care Homes, Residential Health Care Facilities, and Adult and Pediatric Day Health Services Facilities ONLY)*
  - Notify the LHD by phone; reports shall NOT be made via voice mail, fax, etc.
  - When LHD staff cannot be reached, make the report directly to DHSS who will then contact the LHD and regional epidemiologist. Call numbers are 609-588-7500 during business hours or 609-392-2020 after hours.
- The LHD shall:
  - Notify DHSS at 609-588-7500 during business hours or 609-392-2020 after hours.
  - Notify the regional epidemiologist.
- State facilities shall make the report directly to DHSS at 609-588-7500 during business hours or 609-392-2020 after hours.

Case Investigation

Upon notification, DHSS will assign an "E" number to the outbreak. Clearly mark all correspondence and lab samples with this number.

The LHD, in consultation with the regional epidemiologist, shall lead the investigation by providing the facility with guidance, support and assistance. The LHD should consider making an on-site visit for initial evaluation and ongoing assessment. The facility shall follow the basic steps listed below. Note: Steps may occur simultaneously during the course of the investigation.

1. Confirm that an outbreak exists.
2. Verify the diagnosis using clinical, epidemiological and lab test information, considering seasonal disease occurrence.
3. Develop a case definition based on clinical and laboratory criteria.
4. Perform active surveillance.
5. Document cases in a line list.
6. Identify and eliminate transmission sources when possible.
7. Institute control measures, balancing infection control concerns with disruption of residents' quality of life routines.
8. Evaluate effectiveness of control measures and modify as needed.
9. Summarize the investigation in a written report to communicate findings.

1. Confirm that an outbreak exists.

- Compare the number of current cases to expected norms. Suspect an outbreak when the number of acute gastroenteritis cases is greater than what would be expected to occur within a single unit, wing, or throughout the entire facility during a defined time period.

2. Verify the diagnosis.

- Determine the cause of gastroenteritis based on the history, physical exam and/or laboratory findings of the resident or staff member. Be alert for noninfectious causes of symptoms such as medication, gallbladder disease or other conditions. Norovirus infections are seasonal, with higher incidence from November through March. During these months, when signs and symptoms are clinically compatible, strongly consider norovirus.
- Collect 1 stool specimen from approximately 5 ill residents or staff for laboratory confirmation of the infecting organism. Lab testing may be done through the facility's standard procedures or at the state Public Health and Environmental Laboratory (PHEL). The LHD or regional epidemiologist shall facilitate lab testing and/or specimen transport. **All specimens sent to PHEL must be properly labeled and packaged**. See "Instructions for Sending Stool Specimens for Norovirus testing to NJDHSS Public Health and Environmental Laboratories."
- At least two laboratory-confirmed cases are needed to confirm an outbreak's etiology. When necessary, collect additional specimens from newly ill cases. When fewer than two laboratory-confirmed cases are found, a probable infectious agent can be inferred through clinical signs and symptoms.

3. Develop a case definition.

- The case definition describes the criteria that an individual must meet to be counted as an outbreak case, including clinical signs & symptoms, physical location and specific time period.
- The case definition will be developed collaboratively by the facility, LHD and the regional epidemiologist based on the current situation. DHSS is available for consultation as needed.
- Two examples of case definitions for acute gastroenteritis associated with a long-term care facility or institutional setting are shown below:

    1. Fever, nausea, and abdominal discomfort on or after mm/dd/yy **plus** two or more episodes of vomiting and/or loose or watery stools ***above the expected norm*** for the resident or staff member on Unit XYZ within a 24-hour period.
    2. Laboratory evidence of a gastrointestinal pathogen such as norovirus, *Shigella*, *Escherichia coli*, *Campylobacter*, *Clostridium difficile,* in a resident or staff member of Unit XYZ on or after mm/dd/yy **AND** at least one symptom or sign compatible with gastrointestinal infection (e.g., nausea, vomiting, abdominal pain or tenderness, and diarrhea).

4. Perform active surveillance.

- Seek out additional cases among residents and staff. Be alert for new-onset illness among exposed persons, and review resident and staff histories to identify previous onsets of illness that may not have been correctly recognized as being part of the outbreak.

5. Document and count cases.

- The facility shall develop and maintain a line list. A sample line list for persons with gastrointestinal illness may be found at http://nj.gov/health/forms/cds-12.dot
- The LHD investigator shall review the line list with the facility and regional epidemiologist to assess the status of the outbreak and make recommendations regarding control measures.

6. Identify and eliminate possible transmission sources.

- In general, food- or waterborne transmission is suspected when illness onsets are clustered within a relatively short period of time. Person-to-person transmission is usually associated with cases that occur over a longer period of time.
- A floor plan may be used in conjunction with a line list to document the physical locations of case-patients and ill staff to identify possible transmission routes.
- **Exclude Sick staff**. Staff members who become sick with a fever or gastrointestinal symptoms shall be sent home immediately. Symptomatic staff members shall be restricted from performing direct patient care for at least 24 hours after acute symptoms have resolved. [2]

- **Inform receiving facilities of the outbreak when transferring residents.** Transfer notification applies to both ill residents and exposed well residents. If at all possible, limit transfers to medical necessity.
- The facility, LHD and regional epidemiologist should collaborate to determine the outbreak source. Occasionally, even with thorough investigation, the source might not be identified.

7. Institute control measures.

Control measures are the tools that can end the outbreak by halting transmission. The LHD, in consultation with the regional epidemiologist, shall provide recommendations and guidance to the facility regarding control measures. Control measures can negatively impact residents' quality of life by restricting their lifestyle, and staffing limitations are difficult to implement. Nevertheless, the facility should make every effort to institute and maintain adequate control measures until the outbreak is declared over.

Basic control measures are listed below.

A. Cohort residents, staff, equipment and supplies according to their living/work area.[3]

- Identify three cohort groups: 1.) "Ill" 2.) "Exposed" (not ill, but potentially incubating) and 3.) "Not ill/not exposed" (new admissions/staff.)
- Restrict use of equipment and supplies to use within a specific area, and do not allow residents/staff from one cohort to mix with other cohorts. (For example, suspend community dining or recreational activities where ill and well would otherwise intermingle.) See B1, below.
- Close the facility to new admissions if the physical set-up does not allow for complete segregation between "not ill/not exposed" and "ill/exposed" cohorts.
- Symptomatic residents should remain in their rooms for at least 24 hours after acute symptoms have resolved.
- Staff assigned to affected unit(s) should not rotate to unaffected units until the LHD and regional epidemiologist have determined that the outbreak is under control. This restriction includes prohibiting staff from working on unaffected units after completing their usual shift on the affected unit(s).
- Restrict use of cleaning equipment such as mops and brushes to their specific area within a unit. Restrict exchange of resident supplies between cohorts (e.g., bed linens, dressings, water pitchers, towels.) Use disposable non-critical patient care equipment (e.g., blood pressure cuffs) or dedicate use of such equipment to individual residents. If common use of equipment for multiple residents is unavoidable, clean and disinfect such equipment before it is used on another resident.

B. Institute contact precautions.

The following information about contact precautions is excerpted from CDC Guidelines for Isolation Precautions.

Note: There are three categories of transmission-based precautions: contact precautions, droplet precautions, and airborne precautions. Transmission-based precautions are used when routes of transmission are not completely interrupted using standard precautions alone. Use contact precautions (in addition to standard precautions) for residents with known or suspected infections or evidence of syndromes that represent an increased risk for disease transmission.

1. RESIDENT PLACEMENT- *A*cute care hospitals place patients who require contact precautions in a single-patient room. In long-term care and other residential settings, make decisions regarding resident placement on a case-by-case basis, balancing infection risks to roommates with the adverse psychological impact room placement might have.
2. GLOVES- Wear gloves whenever touching the resident's intact skin or surfaces and articles in close proximity to the resident (e.g., medical equipment, bed rails). Don gloves upon entry into the room or cubicle. Remove and dispose of gloves after completing tasks, **before** touching anything else.
3. GOWNS- Don gown upon entry into the room or cubicle. Remove gown and observe hand hygiene before leaving the patient-care environment. After gown removal, ensure that clothing and skin do not touch potentially contaminated environmental surfaces that could result in the possible transfer of microorganism to other residents or environmental surfaces. Gowns should be disposed of in a closed receptacle **inside** the resident room.
4. FACE PROTECTION- Because spattering or aerosols of infectious material might be involved in disease transmission, wearing masks and goggles should be considered for persons who clean areas substantially contaminated by feces or vomitus.[4]
5. RESIDENT TRANSPORT- Limit transport and movement of residents outside of the room to medically necessary purposes. Don gown and gloves before preparing resident for transport. After resident is placed in transport vehicle (e.g., stretcher, wheelchair) remove and dispose of contaminated personal protective equipment (PPE) and perform hand hygiene. Change into clean PPE to handle the resident at the transport destination.
6. ENVIRONMENTAL MEASURES-
    - Ensure that rooms of residents on contact precautions are prioritized for frequent cleaning and disinfection (e.g., at least daily; two or more times a day when indicated) with a focus on frequently touched surfaces (e.g., bed rails, over bed table, bedside commode, lavatory surfaces in resident bathrooms, doorknobs) and equipment in the immediate vicinity of the resident. Frequently touched surfaces in common areas (hallways and dining rooms) should also be prioritized for frequent cleaning.

- Disinfect surfaces as listed below:[3]
  - Use a broad spectrum product registered with the EPA as being tuberculocidal or effective against norovirus, according to manufacturer's instructions.
  - Use a solution of chlorine bleach equal to 1000 parts per million. (½ cup household bleach per gallon of water) followed by air drying (i.e., do not wipe dry.)
  - Use a bleach wipe at a 6% concentration of sodium hypochlorite for a 2 ½ minute contact time followed by air drying.
  - In areas with high levels of soiling and resistant surfaces, use a solution of chlorine bleach equal to 5000 parts per million (2½ cups household bleach per gallon of water), followed by air drying.
  - Do not use a common cloth for cleaning/disinfecting. Use paper towels and dispose of them immediately after use.
- After use, soak cleaning equipment such as mop heads and brushes for 30 minutes in a solution of chlorine bleach equal to 2600 parts per million (3/4 cup bleach to 1 gallon of water, prepared and mixed daily.)

C. Reemphasize hand hygiene among residents, staff and visitors.

The CDC has identified hand washing as the single most important means of preventing the spread of infection at all times. During the outbreak all staff, residents and visitors must be reminded to observe meticulous hand hygiene. The following points should be stressed:

- After soaping, all surfaces of the hands should be rubbed together vigorously for at least 15 seconds, then rinsed thoroughly. Hands should be dried completely, using a disposable paper towel.
- Hands should be washed before donning and after removing gloves.
- Waterless hand sanitizers should not be substituted for soap and water during a GI outbreak because they have been shown to be ineffective against spore-forming bacteria such as C. difficile, or viruses such as norovirus.[5,6]

D. Provide in-service education to ALL staff on ALL shifts.

- In addition to all direct caregivers employed by the facility, staff includes volunteers, private duty, contracted or agency personnel who perform housekeeping, recreational, laundry, dietary, social service, and administrative activities.
- Education is **mandatory** for all shifts, even if a staff in-service program has been completed recently.
- Place major emphasis on meticulous hand hygiene since it is the most effective control measure in ceasing further spread. Provide information on the infecting organism and its transmission, contact precautions, and movement restriction. Advise ill staff not to provide patient care in any setting.
- Contact the LHD for facts sheets or other pertinent educational materials.

E. Restrict visits from family, friends and volunteers as necessary.[7]

- Advise visitors of the need to adhere to contact precautions and strict hand hygiene. Emphasize that using hand sanitizer cannot be substituted for soap and water hand washing.
- Post signs to reinforce infection control measures. Signage should be eye-catching and posted at building entrances as well as outside resident rooms. At a minimum, signs should cover proper hand washing technique, and instructions on the use and disposal of gowns and gloves.
- Provide adequate supplies of soap, hand towels, gowns and gloves in residents' rooms.
- Provide and maintain disposal receptacles for infection control supplies.

8. Evaluate the effectiveness of control measures and modify as needed.

Generally, the outbreak is considered to be over when two incubation periods have passed without a new case being identified. Waiting two incubation periods allows for recognition of potential secondary case-patients that are still asymptomatic but in whom the disease may be incubating.

- If new cases are identified after control measures have been instituted for one incubation period, continue outbreak control measures in consultation with the facility administration, LHD and the regional epidemiologist. **Evaluate and enforce adherence to infection control precautions by all staff, residents and visitors.** Continue control measures until no new cases are identified for two incubation periods.
- When no new cases are identified after two incubation periods, control measures may be ceased. Continue active surveillance for new cases according to LHD recommendations.

9. Summarize the investigation in a written report.

- The LHD and facility shall collaborate on a final report and submit it to DHSS within 30 days of completion of the investigation. See the NJDHSS website for the report format, available at http://www.state.nj.us/health/forms/cds-30.dot (form CDS-30) and http://www.state.nj.us/health/forms/cds-30_instr.doc (instructions for completion.)

References

[1.] New Jersey Administrative Code, Title 8. Department of Health and Senior Services, Chapter 57: Communicable Diseases. Available at http://nj.gov/health/cd/documents/njac857.pdf. Accessed December 22, 2008.

[2.] Centers for Disease Control and Prevention, Diagnosis and Management of Food borne Illnesses, MMWR Morbidity and Mortal Weekly Report. April 16, 2004; 53:RR-04; 1-33.

[3.] Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, Centers for Disease Control and Prevention, June 2007.

[4.] Centers for Disease Control and Prevention, Norovirus in Healthcare Facilities Fact Sheet, Available at: http://www.cdc.gov/ncidod/dhqp/id_norovirusFS.html. Accessed December 22, 2008.

[5.] Liu, Pengbo, Effectiveness of antibacterial soaps and hand sanitizers against the viruses that cause “stomach flu”, Paper presented at the 106th General Meeting of the American Society for Microbiology, Orlando, Florida, May 21-25, 2006. Available at http://www.asm.org/Media/index.asp?bid=42835. Accessed December 22, 2008.

[6.] Centers for Disease Control and Prevention, Guideline for Hand Hygiene in Health-Care Settings, MMWR Morbidity and Mortal Weekly Report. October 25, 2002;51:RR-16; 1-44.

[7.] Centers for Disease Control and Prevention, "Norwalk-Like Viruses" Public Health Consequences and Outbreak Management, MMWR Morbidity and Mortal Weekly Report. June 1, 2001;50:RR-09; 1-18.

Communicable Disease Service

Instructions for Sending Stool Specimens for Norovirus Testing to NJDHSS Public Health and Environmental Laboratories (PHEL)

Stool specimens should arrive at the state lab between 8:00 a.m. and 2:00 p.m., Monday-Friday, excluding holidays. Specimens collected at night and on weekends or holidays should be shipped the following business day (except Friday.) Specimens must be refrigerated until shipped.

Collection:

1. As feasible, obtain a stool specimen from 5 residents who are currently experiencing diarrhea, ONLY one stool specimen from each resident. Use a sterile plastic container (e.g., urine container); no fixatives, preservatives or enteric medium are needed. Label each specimen container w/ patient name, DOB, collection date, and assigned “E” outbreak number.

2. Complete a Request for Immunological/Isolation Services (SRD-1 Form) for each specimen. The form may be downloaded at http://www.state.nj.us/health/forms/srd-1.pdf
    a. Enter the assigned "E" outbreak number in the text box entitled "Pertinent Clinical Information”
    b. Under “Test Requested,” check “other tests” and write in “norovirus testing.”

Packaging:

1. Place LABELED specimen container(s), a cold pack (do not use loose ice) and the completed SRD -1 Form(s) in a box and seal with tape.

Shipping:

1. Using a courier or overnight shipping service, send the package to the following address: Bruce Wolf / Virology, NJDHSS Public Health and Environmental Lab, Specimen Receiving Unit, 369 South Warren Street, Trenton NJ 08608.

2. When shipping via a courier service or Fed-Ex, attach the shipping label directly to the packaging box.

3. When shipping via UPS, double boxing is required. Place the packaging box inside a second box, and attach the shipping label to the outside box.

4. If alternate arrangements for shipping are needed, call the NJDHSS IZDP during regular business hours at (609) 588-7500 and be sure to reference the assigned “E” outbreak number.